

Zero Retries issue 0094 2023-04-14

Zero Retries is an independent newsletter promoting technological innovation in Amateur Radio, and Amateur Radio as (literally) a license to experiment with radio technology.

About Zero Retries

Steve Stroh N8GNJ, Editor

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Request To Send

By Steve Stroh N8GNJ

After last week's simultaneous Zero Retries 0093, Zero Retries 0093 BEACON Edition, *and* Zero Retries 0093 YouTube edition... *this* (lone) edition of Zero Retries may seem anticlimactic.

Post too long for email :-)

As I write this issue of Zero Retries, the Substack editor has inserted that banner message. I've done a few test mailings of this issue, and all the content seems to be there (with minor clipping of some boilerplate at the end), and it does go through at least to my Gmail accounts. Thus I'm going to proceed this week, without reducing any content, and flout the banner's advice. It may be that the banner is for mail systems other than Gmail. Please let me know if you have issues receiving this issue of Zero Retries, and especially what email system you use.

Table of Contents With Links!

I finally figured this out!¹ From now on, the emailed version of Zero Retries, and the web version *on publication*, will include a hyperlinked table of contents.

Make: Magazine Editor Dale Dougherty - KN6WKW

It is heartening² to learn in Make: Magazine Volume 84 (see ZR > BEACON below) that Dale Dougherty, Editor of Make Magazine (and President of Make.co) is now an Amateur Radio Operator - KN6WKW, and like Hackaday, he's presenting a positive, modern, techie "vibe" about Amateur Radio in Make Magazine:

Makers, hams, and citizen scientists share the combination of technical culture and community. The amateur community is where the real magic is and no one can quite explain why they do what they do. Twitter doesn't have that kind of community and that's why I'm not on Twitter anymore. If you're a ham, I'd love to hear from you.

If you're a reader of both Zero Retries and Make Magazine, KN6WKW's email is dale@make.co. ~~I will be doing so.~~ I emailed him welcoming him to Amateur Radio.

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Prototype Packet Radio Products - Jason Rausch K4APR

By Steve Stroh N8GNJ

The prolific Jason Rausch K4APR has recently made public mention of some Zero Retries Interesting prototype products that he's developing.

Open Data Shelf

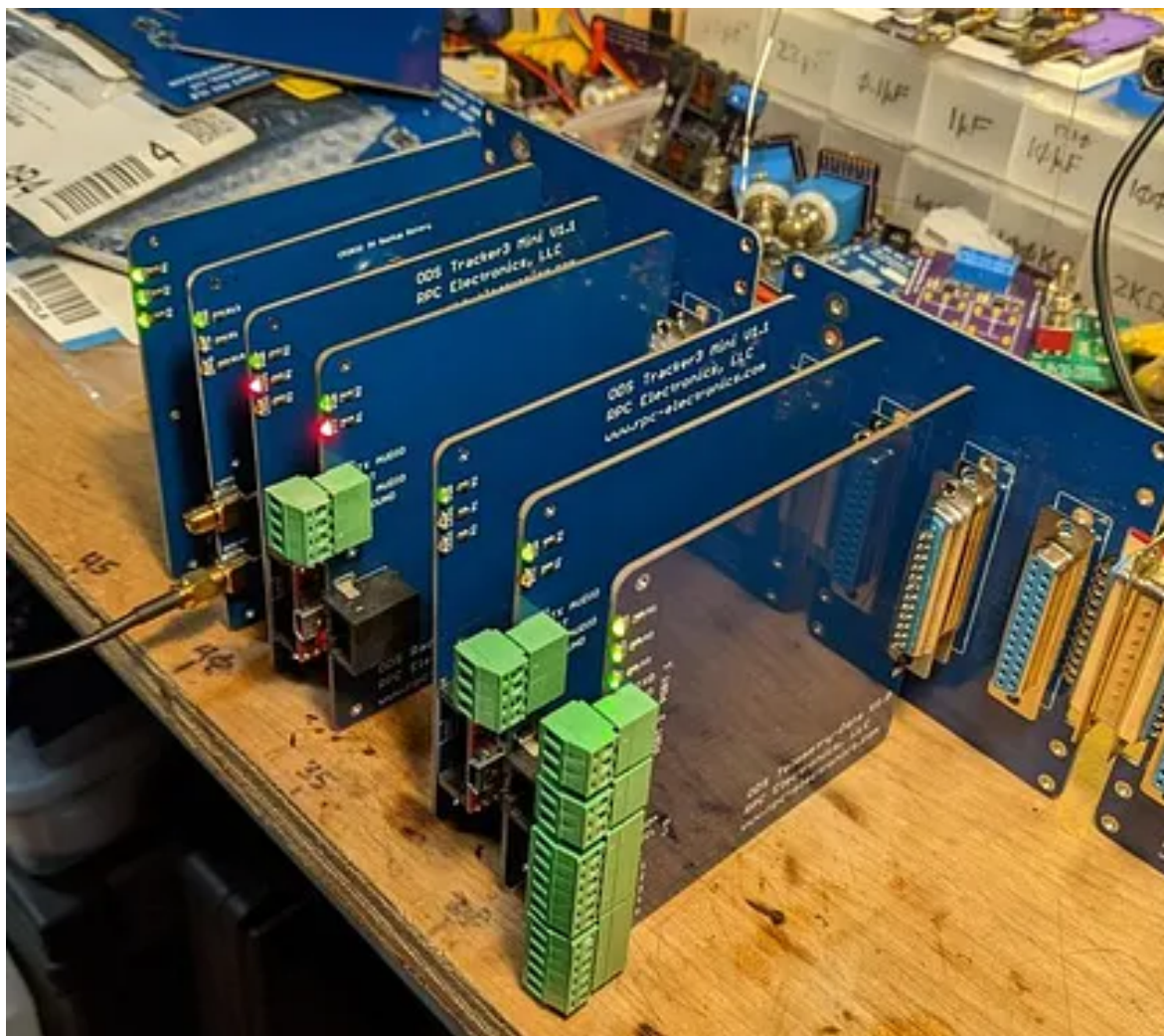


Photo courtesy of Jason Rausch K4APR / RPC Electronics LLC (via Facebook)

Jason Rausch K4APR on the Facebook group *Packet radio systems and information*:

This project is something I have been working off/on for the last few years. I actually came up with the concept nearly ten years ago, but the design changed a lot digitally, before committing to actual physical hardware. I showed it publicly for the first time this past weekend at the Raleigh RARSFest and figured I should share it here.

I settled on the name of Open Data Shelf because I want it to be an open standard that people can apply their own hardware designs to. At the core, it's a modular backplane system using standard DB25 connectors for the module interface to the backplane. I looked at other connector options, but the pricing quickly skyrocketed the overall cost of the system.

The ODS is meant to build up modular packet systems, digipeaters, telemetry and other packet data systems.

The modules shown are what I consider bare minimum needs to assemble a packet digipeater/system.

Left to Right:

- Power Supply - +3.3V @ 3A, +5V @ 3A
- GPS - NMEA and 1PPS
- Modem - Tracker 3 Mini based packet/APRS modem
- Radio Interface - RJ45 and Terminal block radio interface
- GPIO/Telemetry - Breaks out GPIO, UARTS and other I/O

I'm working on a video to better explain the whole thing and go over each module in detail. Just curious if there is any interest in this idea. My hope is that others will design modules to work with it and sell them themselves. I have plans to design a module using the NinoTNC modem design to give the ODS 1200, 2400, 4800 and 9600 baud over the air options.

I think there would be a lot of interest, especially if the backplane was available (at least as a kit) and some standard modules were widely available. It might seem like this would quickly be cloned by overseas manufacturers, but my professional experience is that such manufacturers, especially at low price points, don't like to deal with large through-hole connectors such as the DSUB-25 connectors.

Another thought is that such a concept / project is yet another reason that an Amateur Radio standards organization such as my imagined Amateur Radio Standards Organization (ARSO) as explained in Zero Retries 0079 would be useful.

NinoTNC SMT Prototype Update [V1.1]

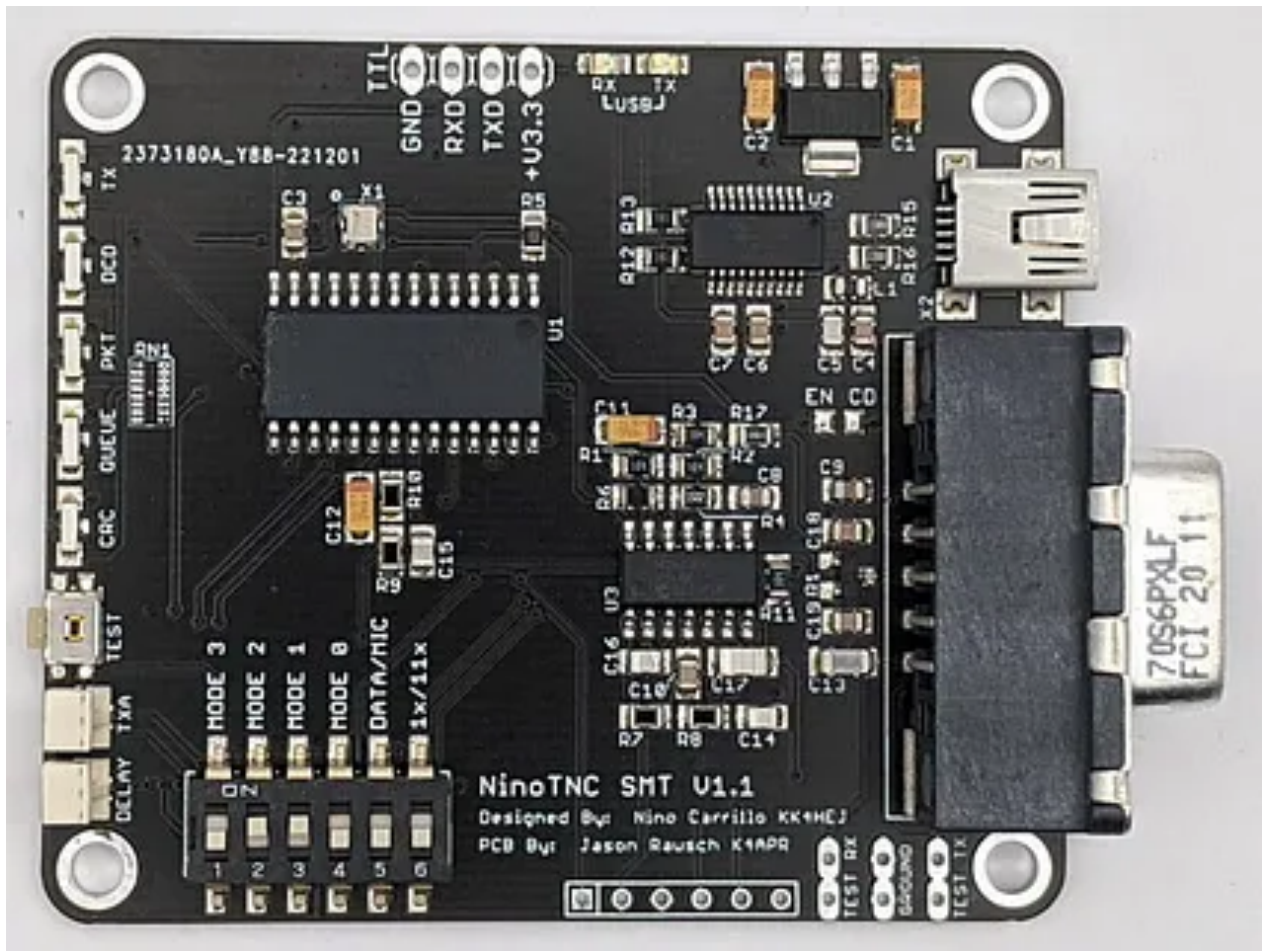


Photo courtesy of Jason Rausch K4APR (via NinoTNC mailing list)

Jason Rausch K4APR on the *NinoTNC mailing list*:

A little over a month ago I teased that Nino and I were working on a [Surface Mount Technology- SMT] version of the NinoTNC. The first run test PCBs have a few problems. I made corrections and changed out a few components. I'm happy to announce that we have a working prototype that appears to be nearly perfect operationally. Still doing some testing, but so far it looks good.

When asked if this board would be offered as a kit, K4APR replied:

No, I'm sorry, it won't. While I'm sure there are some capable of assembling an SMT kit without issues, I'm not prepared to support SMT kits that are badly built. I had a friend attempt to sell a kit that had TWO SMT parts on a board and a majority of them came back with pads lifted, burned PCB's, [etc.] that they could not be salvaged. Of course, my friend's product that deemed "inferior" and "faulty" by those customers. I won't be taking that risk.

The subtext of this potential product is that the [NinoTNC](#) is available only as a printed circuit board (PCB) designed for through-hole parts and thus relatively easy to assemble and solder by non-professionals. But the NinoTNC is not a kit - only the PCB and the processor is supplied. All other components must be independently sourced by the purchaser, and that often turns into a "treasure hunt" when one or more components is out of stock.

In my opinion, K4APR is correct and entirely justified for his stance not to offer this unit as a kit - SMT

work requires experience, specialized equipment such as a temperature-controlled soldering iron or hot plate, and (especially) steady hands. As a former electronic technician, I have experience and (some) equipment... but even if such a kit was offered, *I'd happily pay more to buy the assembled and tested version.*

When / if these prototype units become products, they'll be available through K4APR's business - [RPC Electronics LLC](#).

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N8GNJ Attendance at Zero Retries Interesting Events in 2023

By Steve Stroh N8GNJ

A number of folks have asked if I will be attending various events in 2023.

- **VCF East 2023**

It's a happy coincidence that I will be in New Jersey for a personal event on the same weekend as [Vintage Computer Festival \(VCF\) East](#) - April 14th through 16th, 2023, in Wall, New Jersey. VCF East is one of the major events in vintage computing. I'll be attending only on Saturday, but I will make the most of it. I'm particularly looking forward to seeing Jeri Ellsworth AI6TK and her latest projects.

- **Utah Digital Communications Conference 2023**

A casualty of personal budget and competing priorities is that I won't attend [Utah Digital Communications Conference 2023](#) on April 29th, 2023 in Sandy, Utah. It would have been fun to attend UDCC and meet up with the Utah crowd of Amateur Radio digital mode enthusiasts.

- **MicroHAMS Digital Conference 2023**

I will attend the (virtual, via videoconference or YouTube) [MicroHAMS Digital Conference 2023](#) on May 6th, 2023. I've been asked to be a presenter.

- **Hamvention 2023**

Longer term readers will remember the long countdown in Zero Retries towards Hamvention 2022, and perhaps note that a similar countdown is absent for Hamvention 2023. It's now decided that I won't attend [Hamvention 2023](#) - May 19th through 21st, 2023 in Xenia, Ohio. I would have liked to attend Hamvention 2023, but personal budget and competing priorities mean ruled that out. It's my guess that Hamvention 2023 will be a nearly full resumption of attendance and vendor participation, and overall energy and enthusiasm after several years of COVID-19 impacts.

- **SEA-PAC 2023**

The sole, committed, in-person Amateur Radio event on my schedule at the moment is [SEA-PAC](#) - June 2nd through 4th, 2023 in Seaside, Oregon. There's nothing specifically Zero Retries Interesting at SEA-PAC; it's just the largest Amateur Radio event in the Pacific Northwest. I often see a number of old friends there, do some flea market browsing. Best of all, SEA-PAC is an excuse to spend some time on the *beautiful* [Oregon Coast](#)!

- **GNU Radio Conference 2023**

Ditto being unable to attend [GNU Radio Conference 2023](#) due to a *busy* September in our family. GRCon23 will be held September 5th through 9th (2023) in Tempe, Arizona, USA. Like UDCC,

GRCon23 would have been fun to attend and meet up with that particular crowd of radio digital mode enthusiasts.

- **TAPR Digital Communications Conference 2023**

While there doesn't seem to be any info publicly available yet about [TAPR DCC 2023](#), it's historically held in September and that will be a *busy* month in our family, and thus it's unlikely that I'll be able to attend TDCC in person.

- **October 20-22, 2023 - To Be Determined**

Two competing (for me, anyway) Zero Retries Interesting events are being held October 20th through 22nd, 2023.

[Pacificon 2023](#) in San Ramon, California is an event I've wanted to attend for some time and after a busy September, a modest weeklong road trip to the Bay Area in California might be fun and relaxing.

Or...

[LinuxFest Northwest 2023](#) in Bellingham, Washington³ right down the road from my home. LinuxFest Northwest is a stellar event (and sorely missed these last few years). If I do attend LinuxFest Northwest, I may try to do a presentation to expose Amateur Radio to the Linuxfest Northwest attendees by discussing the many Linux software packages used in Amateur Radio.

Leave a comment

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Zero Retries Administrivia - Notification of URL Change

By Steve Stroh N8GNJ

Several milestones for Zero Retries are approaching, such as Zero Retries 0100, the two year anniversary, and a new subscriber threshold. Thus I feel that it's an appropriate time to implement some long planned improvements Zero Retries. There will be additional changes during April, 2023.

Changing the Zero Retries Address (URL) to zeroretries.org

Substack offers the option... *one... time... only...* to change an existing newsletter from a Substack subdomain (currently zeroretries.substack.com) to a custom domain (zeroretries.org). As I understand the process (only partially, as I write this), the old URL will continue to work so all previous references to zeroretries.substack.com will redirect to zeroretries.org. But, this is a "there be dragons" decision so I plan to proceed with this change cautiously to give some time for domain mappings to "settle down" prior to Friday publication.

As I write this (early in the week of April 9 - 15, 2023), I *currently* plan to implement this change on Wednesday 2023-04-19, but that may change.

ZR > BEACON

By Steve Stroh N8GNJ

Short mentions of Zero Retries Interesting items.

Make: Magazine had *three* mentions of Amateur Radio in its [Volume 84](#) issue:

- **The Amateur Enthusiast** (editorial) by Dale Dougherty KN6WKW (Page 6)
I recently deleted my Twitter account and got a call sign.
- **Unleash the Amateurs** by David Lang (Page 14)
They'll take tech farther than companies or governments imagine. Lessons from the early days of radio.
- **Getting Started with Software Defined Radio (SDR)** by Tim Degan (Page 116)
In my opinion, this article was a *very good*, six page introduction to inexpensive Software Defined Receivers.

You can purchase [just Volume 84](#), and Make Magazine is available in [print and digital form](#).

Icom IC-905 Manuals Now Online

If you're interested in the forthcoming Icom IC-905 VHF / UHF / Microwave superradio, most questions about it can now be answered from the IC-905 manuals that are [now available online](#).

USB Over Ethernet With a Raspberry Pi and VirtualHere Software

Jules M0UGA via the *sdr-radio mailing list*:

... I have used an Airspy R2 with the following solution that may well work as well for you as it did for me.

Using an RPi4 and '[Virtualhere](#)' you have a USBIP solution and although it is commercial software, the last I knew it is/was free to use with a single device attached to the RPi (as opposed to using the RPi as a remote USB hub with several devices attached).

The architecture is this: the Lime is connected to the remote RPi running the Virtualhere USB server code at the masthead (or wherever..) but within the usual ethernet constraints.

An ethernet cable runs back to the PC indoors which is running the client SDR software (SDRC? ;-). The PC has the Virtualhere (usb to ethernet) driver installed and once both ends are up and running, the ethernet link is actually transparent to the client software and in my experience works extremely well on an RPi4 (with the ethernet port no longer running on the USB bus internally like the earlier versions).

With a suitably equipped RPi 802.3 power over ethernet could be used as well, so it's potentially a one cable solution out to the box.

Other USBIP solutions are available, so Google around and get a feel for what's available but my experience with Virtualhere was very favourable. You really didn't know it was running over ethernet even at the full R2 sample rate.

This is relevant to the discussion of Remote Mounted Microwave Software Defined Transceivers in Zero Retries 0088. This seems like a totally practical solution of installing Software Defined Receivers near antennas for minimal feedline loss.

TAPR Packet Status Register (PSR) 155 - Spring 2023

[Now online!](#) Includes two great articles by Darryl Smith VK2TDS about getting on HF with a Mac.

Leave a comment

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Feedback Loop

Thank you John Kreno N3XKD, Steven Davidson, Alexander DL4NO, and Stan Horzepa for a number of good comments on Zero Retries 0093! *Greatly appreciated!*

No comments received for Zero Retries 0093 BEACON Edition, or Zero Retries 0093 YouTube Edition.

If you provide feedback via email, I may excerpt your feedback or include it in full. Unless you specifically grant me permission to include your name, I won't do so. Feedback may be lightly edited for clarity.

Join the *Fun* on Amateur Radio

If you're not yet licensed as an Amateur Radio Operator, and would like to join the fun by *literally having a license to experiment with radio technology*, check out

Join the Fun on Amateur Radio for some pointers.

Zero Retries Frequently Asked Questions (FAQs) - In development 2023-02.

Closing the Channel

In its mission to highlight technological innovation in Amateur Radio, promote Amateur Radio to techies as a literal license to experiment with radio technology, and make Amateur Radio more relevant to society in the 2020s and beyond, Zero Retries is published via email and web, and is available to everyone at no cost. Zero Retries is proud *not to participate* in the Amateur Radio Publishing Industrial Complex, which hides Amateur Radio content behind paywalls.

My ongoing *Thanks* to:

- Tina Stroh KD7WSF for, well, *everything!*
- **Pseudostaffers** that write about about “Zero Retries Interesting” items on their blogs that I don't spot:
 - [Dan Romanchik KB6NU](#)
 - [Jeff Davis KE9V](#)
- **Newsletters** that regularly feature Zero Retries Interesting content:
 - [Amateur Radio Weekly](#) by Cale Mooth K4HCK is a weekly anthology of links to

interesting Amateur Radio stories.

- [Experimental Radio News](#) by Bennet Z. Kobb AK4AV discusses (in detail) Experimental (Part 5) licenses issued by the US FCC.
- [TAPR Packet Status Register](#) has been published continuously since 1982.
- Other Amateur Radio newsletters published on Substack recommended by Zero Retries.
- **YouTube channels** that regularly feature Zero Retries Interesting content:
 - [HB9BLA Wireless](#) by Andreas Spiess HB9BLA
 - [KM6LYW Radio](#) by Craig Lamparter KM6LYW (home of the [DigiPi project](#))
 - [Modern Ham](#) by Billy Penley KN4MKB
 - [Tech Minds](#) by Matthew Miller M0DQW
- The [Substack email publishing platform](#) makes Zero Retries possible. I recommend it for publishing newsletters.

If you're reading this issue on the web and you'd like to see Zero Retries in your email Inbox every Friday afternoon, just click below to join ~~100 200 300 400 500 600 700~~+ other readers:

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Offering **feedback or comments** for Zero Retries is equally easy - just click:

Leave a comment

If you're a fellow smart person that uses **RSS**, there *is* an **RSS feed for Zero Retries**.

Zero Retries (N8GNJ) is on Mastodon - n8gnj@mastodon.radio - just click:

[Zero Retries / N8GNJ on Mastodon](#)

Email issues of Zero Retries are “instrumented” by [Substack](#) to gather basic statistics about opens, clicking links, etc.

More bits from Steve Stroh N8GNJ:

- [SuperPacket blog](#) - *Discussing new generations of Amateur Radio Data Communications - beyond Packet Radio (a precursor to Zero Retries)*
- [N8GNJ blog](#) - *Amateur Radio Station N8GNJ and the mad science experiments at N8GNJ Labs - Bellingham, Washington, USA*

Thanks for reading!

Steve Stroh N8GNJ / WRPS598 (He / Him / His)

These bits were handcrafted (by a mere human, not an Artificial Intelligence bot) in beautiful

Bellingham ([The City of Subdued Excitement](#)), Washington, USA.

2023-04-14

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Blanket permission granted for TAPR to use any Steve Stroh content for the TAPR Packet Status Register (PSR) newsletter (I owe them from way back).

[1](#)

For benefit of my fellow Sustack authors, the trick to seeing the heading hyperlinks pre-publication is to go into Settings and open the Secret draft link URL - *then* the subheading hyperlinks are accessible.

[2](#)

I'll forgo a rant about the Amateur Radio publishing-industrial-complex completely ignoring this very significant development of this *very significant bridge* between the Maker community and Amateur Radio. Mostly.

[3](#)

Regular attendance at LinuxFest Northwest, and the subsequent exposure to Bellingham (the City of Subdued Excitement) Washington, heavily influenced our decision to relocate to Bellingham from the Seattle area in 2019. If you attend LinuxFest Northwest and suffer a similar fate, you were warned. 😊